legislative aid should be given, they are yet aware, that with zeal, energy, and perseverance much might be done, even with the present imperfect powers, by individual and combined exertion, to lay the foundation of measures which would afterwards be extended and perfected to the permanent benefit of the community.

INSTITUTION OF CIVIL ENGINEERS.

APRIL 23.—The President in the chair.

The first paper read was by Mr. C. Geach, who had promised, at a meeting of the Institution in February, 1843, to give the results of more extended comparative trials of the strength of solid and hollow axles. The result of the present experiments was as decidedly in favour of the solid axles as the former ones had been in favour of the hollow ones, so that as far as the practical utility of the examination extended the results were useless.

A paper was then read by Mr. Glynn relative to the fracture of railway axles, which he attributed to the constant succession of blows received by the axle in travelling. The action was stated to be similar to that of an axle laid on the edge of an anvil and subjected to a series of smart blows of a hammer while in constant rotation. The fractures presented the appearance of a clear annular cleft all round for a depth of half an inch in the body, the centre part being crystallized and reduced so much as to be unable to bear the weight and the portion to which the axle was subjected by the pressure of the break on one of its ends. These observations had induced the Railway Company to apply the power of the break to both wheels simultaneously, thus avoiding the torsional strain.

"An Account of the Scaffolding used in erecting the Nelson Column, Trafalgar-square," by Mr. T. Grissell, was then read. This scaffolding which was first used in London for the erection of the façade of the London and Birmingham Railway Station, by Messrs. Cubitt, then by Messrs. Grissel and Peto at the Reform Club House, and also at Woolwich in forming the New Graving Dock, was composed of sills, uprights, crossheads, longitudinal timbers, braces, and struts, all of whole timber. The upright timbers were slightly tenoned into the horizontal timbers and the junctions secured by iron dugs driven into the timbers diagonally across the joints, which were preferable to bolts or spikes, as they could be more easily withdrawn and the timber was not injured. It was stated that with this scaffolding and the travelling machine at its summit, one mason could set as much work in one day as was formerly done in three days by the old system, even with the aid of six labourers, who are now dispensed with. The base of the scaffold was 96 feet square exclusive of the raking braces; the height of each stage varied from 21 feet to 48 feet, the total quantity of timber used in its erection was 7,700 cubic feet, and its cost was 240*l.* for labour in erecting. It was recommended that the plan adopted at Liverpool of bonding timber upon dry land instead of allowing it to float in timber ponds should be made use of in London, as by that means there would be less decay and the timber would be better seasoned, and the Kyanizing process would not be so much required.

A paper by Mr. Pierre Journet was then read, describing the scaffolding employed by him for the construction and repair of columns, obelisks, and chimneys of great height, at Paris; and also the machine used for raising building-materials at the Houses of Parliament, the mansions at Albert-gate, Hyde-park, &c.

The scaffolding consisted of a simple combination of a number of brackets, fixed at regular distances of about 5 feet apart, vertically upon girdles of chains and screws, braced tightly round the column under repair; upon these brackets the platforms were laid, and as the workmen proceeded upwards the lower brackets were alternately raised to the platforms above, where the workmen stood. The progress thus made in forming and in taking down a scaffold was stated to be very rapid, with corresponding economy of time and expense. No poles or cord were used, and no waste of material occurred. By these means the obelisk of Luxor, at Paris, was repaired in a very short period and at a very small cost.

The machine for raising building-materials consisted of an endless chain of square open links, the lower end revolving round a driven wheel, and the upper end around a corresponding wheel fixed upon the scaffold at the height of the building. The hods, buckets, and baskets were each furnished with a hook, by which they were suspended on the rising side of the chain, and when they arrived at the necessary height they were taken off by labourers, and carried to the spot where the materials were to be used; when empty they were hung upon the descending side of the chain, and lowered to be again filled. Messrs. Grissell and Peto, who had used these machines, expressed themselves much pleased at the economy they effected, which would induce them to employ them more extensively with engine power for the erection of the Victoria Tower at the new Houses of Parliament.

The following papers were announced to be read at the meeting of Tuesday, April 30:—

No. 577. "Description of the method employed for repairing a chimney 120 feet high, at Messrs. Coopers Cotton-mills, Glasgow," by J. Colthurst, Grad. Inst. C.E.

No. 679. "Experimental researches into the properties of the iron ores of Samakoff, in Turkey, and the hæmatile ores of Cumberland, with a view to determine the best means for reducing them into the cast and malleable state," by W. Fairbairn, M. Inst. C.E.

No. 675. "Description of a pair of iron lock-gates, constructed in 1843 for the entrance of the wet dock at Montrose," by J. Leslie, M. Inst. C.E.

SOCIETY OF ARTS.

ANNUAL ELECTION.

APRIL 17.—The following is a list of the officers for the year ensuing:—

PRESIDENT.

His Royal Highness Prince Albert, K.G., F.R.S., &c. &c.

VICE-PRESIDENTS.

Honorary.—Hugh, Duke of Northumberland, K.G., F.R.S., and F.S.A.; George Granville Leveson, Duke of Sutherland, K.G.; Walter Francis Montague Douglas, Duke of Buccleuch, K.G. K.T., and F.R.S.; Bernard Edward, Duke of Norfolk, K.G., F.R.S., &c. &c.; Spencer Joshua, Marquis of Northampton, President of the Royal Society, &c. &c.; Charles, Earl of Romney; William, Earl of Radnor, F.S.A.; Philip Henry, Earl Stanhope, F.R.S., and F.S.A.; John, Earl of Shrewsbury, F.S.A.; Dudley, Earl of Harrowby, D.C.L., and F.S.A.; William, Earl of Dartmouth, F.R.S., and F.S.A.; William, Earl of Lonsdale, F.R.S; Charles Callis, Lord Western; W. Tooke, Esq., F.R.S.; Thomas Hublyn, Esq., F.R.S.; Richard Twining, Esq., F.R.S.; Benjamin Roteh, Esq.; Joseph Hume, Esq., M.P., F.R.S.; Benjamin Bond Cabbell, Esq., F.R.S., F.S.A., &c.; William Hughes Hughes, Esq., F.S.A., and F.L.S.; William Pole, Esq., F.R.S. &c.; P. M. Roget, Esq., M.D., Sec. R.S., &c.; David Pollock, Esq., F.R.S., &c.; William Henry Bodkin, Esq., M.P.; John Ashton Yates, Esq.; Sir John Josiah Guest, Bart., M.P.

CHAIRMEN OF COMMITTEES.

Accounts.—Henry Robarts, Esq.; Joseph Payne, Esq.

Agriculture.—Layton Cooke, Esq.; G. Aikin, Esq.

Fine Arts.—George Bailey, Esq.; James Savage, Esq.

Chemistry.—Arthur Aikin, Esq.; Edward Solly, jun., Esq.

Colonies and Trade.—Hollis Solly, Esq.; P. Vaughan, Esq.

Correspondence and Papers.—Richard Horsman Solly, Esq.; E. Bramah, Esq.

Manufactures.—John Bethell, Esq.; G. T. Kemp, Esq.

Mechanics.—Charles Holtzapffel, Esq.; Joseph Woods, Esq.

Miscellaneous Matters.—Edward Binyon, Esq.; Thomas Webster, Esq.

SECRETARY.—Francis Whishaw, Esq.

His Royal Highness the President was elected a Trustee of Sir John Soane's Museum in place of his late Royal Highness the Duke of Sussex.

P. M. Roget, Esq., M.D., in the chair.

The secretary read a letter from Major Parlly (who was last year rewarded by the society for his plan for a floating breakwater) as to the natural breakwater of the port of Pisa, shewing that the principle of constructing these important works as laid down by the major is perfectly correct. The following is a literal translation of a description of the port of Pisa, from Claudius Rutilius, an ancient writer and member of an illustrious family at Rome:—

"The harbour is celebrated as the emporium of Pisa, and for its marine riches; the appearance of the place is remarkable, for the coast is an open one, and exposed to every wind. There are no promontories to protect it from storms, but a long sea-weed rises from the bottom of the sea, which defends it without injuring the vessels which pass over and through it, and yet is sufficient, by rising and falling with the waves, to abate their fury, and to prevent their rolling in from the sea in dangerous masses."

The secretary next read a paper on Mr. Sholl's portable barrel-hive, introducing the subject with quotations from the 4th Georgic of Virgil as to the management of bees.

Mr. Sholl's cottager's-hive may be thus described: the stand is of wood, consisting of five pieces, which are so arranged, that they may be taken to pieces readily if required, and put away in the hive if necessary to send it to a distance.

A common American flour-barrel forms the outworks of the hive; the pavilion is formed of wood, and may be either square or circular, and is placed at the bottom of the barrel. It is furnished with a wire-gauze door fixed in the bottom, which furnishes the purposes of a ventilator; two cross-bars are fixed at the top of the pavilion, to which the inhabitants attach the comb. The entrance to the pavilion is circular, and towards the top a metal tube is carried through the wall of the house or barrel, and is furnished with a sliding shield, also of metal, to keep them in when necessary. This slide is perforated so as to assist the ventilation. The pavilion, which can be removed from the house or barrel at pleasure, stands upon four legs, for the purpose of fully ventilating the space between the outer walls of the house or barrel and the pavilion; towards the bottom of the barrel is another aperture, furnished with wire-gauze for the sake of ventilation.

On the top of the pavilion is a folding partition by which it is entirely covered; this partition contains six or any greater number of apertures that may be required, to each of which is a plug of wood with a tin cover; each plug is attached to a string which is secured to the side of the barrel, so that when the plugs are removed from the apertures they may not be lost. The use of these apertures is to admit the bees when necessary from the pavilion into the surplus cases above; a small window is fixed in the partition to ascertain the state of the bees at any time. These cases, six or more in number, are also constructed of wood, nearly fitting the sides of the barrel or house; each case is of segmental form, and open at bottom to admit the bees, and, further, is lighted by a small window in the top. When the bees have filled the pavilion with honey as far as possible, admission is afforded to them to one or more of the surplus cases or additional apartments in which they deposit new comb.

The pavilion remains undisturbed, so far as removing honey is concerned, the additional apartments being supplied for that purpose. When a case is ascertained to be filled with honey it is removed to a distance from the barrel, carefully turned on one side, and the bees returning to the pavilion, the apartment may be entirely cleared of the honey accumulated, and another case may be immediately inserted in its place.

It is readily ascertained which surplus apartment is occupied by the bees, as the admission plug from the pavilion will be found placed on the top of it.

The cover or roof of the bee-house or barrel is hung with common hinges, and secured either by a common lock or a padlock.

The French Government are about to build three steam-packets, of 150-horse power each, to ply between Calais and Dover, with the view of expediting the communication between the two countries, now that the railway from London to Dover is complete, and that from Paris to Calais is in active progress.

To learn how to use OCR and PDF Compression go to ThePaperlessOffice.org